

# Natural Heritage & Endangered Species Program

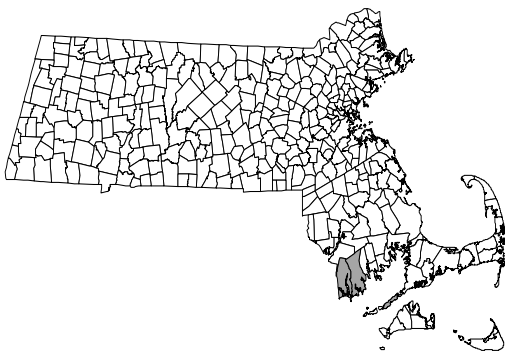
Massachusetts Division of Fisheries & Wildlife  
Route 135, Westborough, MA 01581

[www.nhesp.org](http://www.nhesp.org)

**Description:** Pinnate water-milfoil (*Myriophyllum pinnatum*) is an aquatic herb of the Haloragraceae family. The plant grows either submersed in water or along exposed, muddy shores. When submersed in water, the elongate stems bear weak, finely dissected leaves that can be alternately arranged, whorled, or scattered. The tips of the plants emerge out of the water, where whorls of smaller, less finely divided, bract-like leaves dwarf the tiny, inconspicuous flowers borne in their axils. The terrestrial form of the plant is freely-branched, with stiffer leaves than those of the submersed form.

**Aids to Identification:** Distinguishing the various species of water-milfoils is difficult, especially in the vegetative condition, and a technical manual and an expert should always be consulted. A combination of characters must be used to distinguish the pinnate water-milfoil: 1) the presence of whorled, alternate, and scattered leaves on the submersed stems (rather than regularly whorled or alternate); 2) the presence of longitudinal ridges on the fruit (rather than smooth); 3) the presence of flowers and fruits in the axils of emerged, terminal, bract-like leaves (rather than submerged leaves). Other helpful characters include the absence of winter buds, called turions, and the presence of bract-like leaves that are very much longer than the flowers.

**Similar species:** Common water-milfoils could easily be confused with the pinnate water-milfoil. For example, the widespread, non-native variable-leaved water-milfoil (*M. heterophyllum*) could be confused with this species. However, variable-leaved water-milfoil has regularly-whorled leaves. The lowly water-milfoil (*M. humile*), a native species, has regularly alternate leaves and smooth fruit without ridges borne in the axils of submersed leaves.



Distribution in Massachusetts  
1980-2006

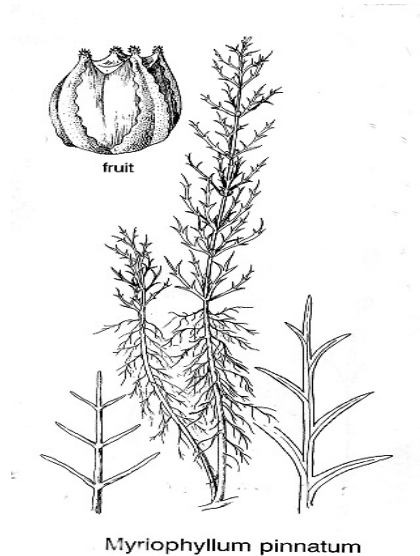
Based on records in Natural Heritage Database

## Pinnate Water-Milfoil

*Myriophyllum pinnatum*

State Status: **Special Concern**

Federal Status: None



Holmgren, N. 1998. The Illustrated Companion to Gleason and Cronquist's Manual. New York Botanical Garden.

**Habitat:** In Massachusetts, the pinnate water-milfoil inhabits coastal salt-pond communities. It is usually in ponds without inlets or outlets and with sandy to muddy bottoms. It is also found on the peaty exposed shores of these ponds and in boggy pondholes and filling the center of deep clay holes. It is most commonly associated with common reed (*Phragmites australis*), water-purslane (*Ludwigia palustris*), and saltmarsh fleabane (*Pluchea odorata*).

**Population status in Massachusetts:** The pinnate water-milfoil is listed as "Special Concern" by the Commonwealth because it is a rare plant limited by an uncommon habitat type. It is known from five current stations and eleven historical stations (not documented within the past 25 years) in Massachusetts. As with all species listed in Massachusetts, individuals of the species are protected from take (picking, collecting, killing) or sale under the Massachusetts Endangered Species Act.

**Threats:** The greatest threat to the pinnate water-milfoil is alteration of its coastal salt pond habitat. One such alteration is the establishment of the invasive common reed (*Phragmites australis*) in salt ponds. Common reed can completely fill small salt ponds, lowering standing water levels and crowding out other vegetation. Nutrient inputs from surrounding residential developments or cattle grazing can also upset the normal chemical balance of the pond, which may lead to changes in species composition. Filling or dredging of coastal salt ponds for residential development is also a threat to pinnate water-milfoil.

**Management recommendations:** The exact needs for management of the pinnate water-milfoil are not precisely known. However, controlling populations of common reed in salt ponds where pinnate water-milfoil grows will benefit this rare plant by reducing competition for space and resources. In addition, allowing large, vegetated buffer zones to persist around salt pond habitat can protect the pond system from nutrient-laden runoff.

**Range:** The pinnate water-milfoil occurs from southern New England south to Florida and west to Illinois, Iowa, and Texas.

**Flowers or Fruit Present**

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec

*Updated: 2006*